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RECENT OCCURRENCES OF RARE BIRDS IN CORNWALL.

BY JAMES CLARK, M.A., D.Sc.

IN the present article an attempt is made to notify all specially interesting occurrences of uncommon birds in Cornwall during the last eight years, so far as they have not been already recorded by others in the pages of 'The Zoologist.' Practically all reference is omitted to the Birds of the Isles of Scilly, as these were fully treated in last year's 'Zoologist' by Mr. F. R. Rodd, of Trebartha, and the present writer. Where no authority is given for the capture of any particular specimen, the bird in the flesh or else the fresh skin was brought into the Schools by one of his students or observers, and identified by the writer. "Reported" specimens are such as have not been seen by him, though there is no doubt as to their genuineness.

The Lesser Whitethroat was not observed on the Cornish mainland till the 11th of September, 1902, when an immature male was killed near Poundstock. The following year it was specially looked for in that district, and several were seen during the third week in September on the dense hedge-banks between Launceston and Bude. The two shot as voucher specimens were both immature females. In 1904 it was observed near Poughill on the 2nd of October, and an adult male was killed at Bodmin on the 26th of the previous month. Probably, through lack of observers, it was not recorded in 1905, but in 1906 a female was shot in a dense oak thicket near the top of Coomb Valley, Kilk-

hampton, and an immature male about the same date just across the border at Holsworthy, in Devon. It is therefore at least a casual autumn bird of passage in the north-east of the county.

The Dartford Warbler was a fairly well-known resident throughout the county in the late seventies, but after the severe winter of 1880-81 does not seem to have been recorded till 1884, when Baily observed it near Penzance. After the hard winter of 1886-87 it was not again observed till May, 1899, when Miss E. A. Reynolds saw it in a garden at Hayle. In April, 1904, a nest with four eggs was found near Penryn. Shortly after hatching one of the young birds disappeared, but the other three were watched till fully fledged. In 1905 a nest with four young ones was discovered at Linkinhorne, and another with five eggs near St. Buryan. Last year birds were again seen about St. Buryan in the spring, and one was flushed from a turnip-field in the autumn. This year it has not yet been recorded for the county.

The Firecrest has in late years been a fairly regular winter visitor. In October, 1900, several came in at the Lizard with a large flock of Chiffchaffs and several Redstarts, and one, a male, was shot to establish identification. From the 7th to the 9th of November that year two were observed at Kea, near Truro. In January, 1901, about a dozen frequented some pine-trees near Tregothnan, with a number of immature Golderests, for about a fortnight, and in November that year one was shot at Kea. In the first week of December, 1904, two lingered for several days near Gulval, at the head of Mount's Bay, and one was killed later in the month at Helston. For a week or so in the middle of November, 1905, it was not at all uncommon among Goldcrests from Malpas down the left side of the river to King Harry Passage, and in November, 1906, it was heard and seen by F. H. Davey in Tresamble Lane between Ponsanooth and Bissoe.

When staying at St. Goar, on the Rhine, in May, 1905, the writer received from a farmer near Liskeard the remains of a Melodious Warbler that had been shot near Sandplace, Looe, on the 12th of the month, under the impression it was a Nightingale. "We killed it," wrote the sender, "so that people should not laugh at us when we said we had heard the Nightingale in Corn-



wall." The specimen, an adult male, is the first recorded for the county.

For some years now a careful watch has been kept for the appearance of the Alpine Accentor at likely places along the south coast, and on the 11th November, 1906, an adult male was shot at Looe, where it had been noticed two days before sitting motionless for several minutes on a low stone wall, and, when disturbed, going off with an irregular Lark-like flight. On the 16th September, 1899, a male Tawny Pipit was captured at Bodmin, but it refused to eat dead insects and ant-eggs, and died in two days. This is so far the only specimen recorded for the Cornish mainland, though Pechell shot one at Scilly on the 19th September, 1868. An adult male of the Great Grey Shrike was caught on limed twigs near Bodmin on the 26th November, 1898, and reported by R. V. Tellam. An unsuccessful attempt was made to keep it alive. It took lean meat readily, but was never properly freed from the bird-lime, and this interfered seriously with its health. On its death the skin was unfortunately not preserved. In September, 1900, a male Pied Flycatcher was killed at Liskeard. The last previous example recorded for the mainland was obtained near Wadebridge by D. Darell on the 23rd April, 1891. The Tree-Sparrow appears to be a casual winter visitor of infrequent occurrence, but may have been overlooked. The last three county specimens seen by the writer are—one shot by John Williams at Scorrier in 1897, and now in Lord Falmouth's collection at Tregothnan; one, a male, at Pencalenick, in November, 1904; and a male at the Lizard on the 9th December, 1906. On the 19th December, 1903, a Mealy Redpoll in immature plumage was shot at Feock, the second example recorded for the county. The Lesser Redpoll is a not infrequent winter casual, occasionally caught with Siskins at Lostwithiel, with Linnets and other Finches at Penzance, and shot or captured at intervals at Looe, Stratton, and elsewhere. The Twite is of rare occurrence. Seven were seen and two shot at Cardynham after the cold stormy weather of March, 1901; one was killed at Lostwithiel towards the end of November, 1904; and one, a female, near Bude on the 11th December, 1906. An immature Bee-eater, a rare accidental straggler to the county, was obtained at Marazion on the 3rd October,

1906, a few days after one had been shot at Scilly. The Hoopoe is apparently a regular spring bird of passage in the county, but is seldom recorded in the autumn. In October, 1905, however, it was seen by several observers along the south of the county from Liskeard to Penzance, and one was unfortunately shot at Gerrans, and another at Fowey. In the spring of 1901 a pair nested near St. Columb, and successfully reared four young birds out of a clutch of five eggs. The unsavoury nest was built in a chink between two stones in an old hedge-bank, about two and a half feet from the ground, and could just be reached by putting the arm in up to the elbow. When the young birds emerged from the egg the beaks were not at all conspicuous, though their gape was enormous. The crest-quills were decidedly in evidence when the writer saw them on the fourth day, and on the sixth the quills that covered their pink ungainly bodies clearly showed the russet-brown of the coming plumage, and the well-marked black and white bars of the wing.

On May 2nd of the present year a male example of Scop's Owl was shot close to Ludgvan, apparently the second that has been obtained on the mainland. Montagu's Harrier has been a scarce summer migrant to the county for over forty years, and there was still one nest at least in the west last spring. The Hen-Harrier nested on the Goonhilly Downs till about 1841 (F. V. Hill). After that date it became a casual of fairly frequent occurrence. In 1903 it again nested in the county, and has done so every year since. The Marsh-Harrier is now a rare casual, but bred on Redmoor Marsh till 1855 (F. R. Rodd). The Rough-legged Buzzard bred in the county down to about 1850 (Trathen and Harris), but is now a rare casual. An immature male in fine condition was killed near Carelew on the 16th November, 1905. Eleven examples of the Honey-Buzzard have been recorded for the county, including one at Land's End in the autumn of 1901, one at Carelew in the autumn of 1902, and one at Ladock, near Truro, on the 21st October, 1904, reported by the Rev. Canon S. R. Flint—all three in immature plumage. An Osprey was seen by the writer, and independently by T. Cornish, at Carbis Bay in September, 1902. A specimen was shot by the gamekeeper at St. Winnow, near Lostwithiel, in March, 1903, and is now in the collection of Sir C. B. Rashleigh.

The Squacco Heron is represented by over twenty specimens, the last of which, a male in superb condition, was shot at Penwethers, near Truro, by T. H. Rowse on the 1st June, 1907, and is now in the Museum of the Royal Institution of Cornwall, Truro. A male American Bittern was killed by two of the clerks in the employment of the Eastern Telegraph Company at Porthcurnow on the 12th November, 1906. The bird was first noticed on the footpath on the east side of the valley, and was chased down into a large clump of whins by the side of the stream and close to the beach, where it was secured with some difficulty. It proved to be a male with plumage in good condition, though the body was very emaciated. The Glossy Ibis is an accidental autumn wanderer, and is always in immature plumage. In October, 1900, it was reported from Hayle, and a month later from Saltash. On the 25th October, 1906, a male in second year plumage was shot close to Sennen Cove, near Land's End.

Of the five Geese recorded for the county the Grey Lag is by far the scarcest. A specimen was reported from Glendurgan, Falmouth, by G. H. Fox in December, 1901. Last winter two or else three gaggles of the White-fronted Goose visited the west of the county, and one specimen was shot by a farmer near Marazion. Bewick's Swan was not uncommon last January on the north coast. Three were in evidence for several days at Newquay, and eleven appeared at Hayle. Swans were also reported from Bude and from Mousehole.

The Gadwall has been procured at least six times on the mainland. A male was sent in to a poulterer's shop at Bodmin in January, 1905, from one of the neighbouring moors, and a female was shot in the Land's End district on the 10th January, 1907. An immature male of the Ferruginous Duck, the only specimen recorded from the county, was killed by some boys on the beach near Mylor on the 11th March, 1905, during very stormy weather. An immature female Long-tailed Duck was shot near Feock on the 31st December, 1906. Two specimens of the scarce winter casual, the Velvet Scoter, were killed on the Helford River on 16th December, 1906, along with an adult male of that rare American vagrant, the Surf-Scoter.

D. Darell reported a Red Grouse that had been shot by

Arthur Menhennick, of Pennart, Port Isaac, at Penpetty, Tintagel, on the 1st December, 1906, the third specimen recorded for the county.

An Avocet was reported by F. V. Hill from the Cober Valley, Helston, where it was killed on the 21st April, 1900, the only specimen recorded from Cornwall during the past twenty-seven years. The Grey Phalarope puts in an appearance in the autumn or winter of most years, but the Red-necked Phalarope is seldom seen. A solitary specimen of the latter was killed at Swanpool, Oct. 21st, 1902. No fewer than eleven examples of the Pectoral Sandpiper have been obtained in the county, nine at Scilly and two on the mainland. One of the latter was obtained at Gyllingvase, Falmouth, in the early forties (Cocks), and the other, a male in most emaciated condition, at Porthgwarra on the 30th April, 1906. The Little Stint, an occasional visitor on spring and autumn migration, was obtained between Hayle and St. Erth on the 12th October, 1903, and at Swanpool, Falmouth, in the autumn of 1905. An American Stint was shot by W. H. Vingoe at Marazion on the 9th October, 1853 (Rodd, Zool. 1853, p. 4297). Another was killed by a fisherman near Mousehole in September, 1890, and bought in the flesh by W. E. Baily, of Paull, in whose collection the writer saw it in February, 1902, incorrectly labelled "*Tringa minuta*." Temminck's Stint is scarcer in the county than the Little Stint. One was obtained near Devoran in October, 1899, and one on the marsh at Gyllingvase on the 1st November, 1904. Three examples of Bartram's Sandpiper have been killed in the county, and all in the Lizard district. The last specimen was found by Dr. Owen hanging up in a poulterer's shop in Falmouth in October, 1903, and is now in his collection.

The Bar-tailed Godwit is an autumn visitor, occasionally in large flocks, but the Black-tailed Godwit is rarely seen. One was observed by the Rev. H. H. Mills near Camborne in October, 1904, and a male was shot on the Helford River near Gweek on the 8th April, 1907.

Sixteen specimens of Sabine's Gull have been recorded from Cornwall, all in immature plumage. The last was shot between Lostwithiel and Doublebois in November, 1902. The Little Gull is also an occasional casual, last obtained at Hayle in

November, 1896, by E. Vingoe, and at Swanpool in November, 1904. Two examples of the Ivory Gull were obtained in February, 1847 (Rodd, Zool. 1847, p. 1699), and two were seen and one shot in Hayle estuary on the 24th January, 1907, by L. Williams. The specimen obtained is an adult male in good condition.

A Black Guillemot, one of the rarest casuals in Cornwall, was picked up dead near the St. Anthony Lighthouse, Falmouth, on the 12th March, 1905, during very stormy weather. A Sooty Shearwater was shot near Looe on the 21st August, 1899, and stuffed by John Ough, of Liskeard. The bird was seen and identified by the writer, but the captor's name was not ascertained.

NOTES ON THE HABITS OF THE GREATER HORSE-SHOE BAT (*RHINOLOPHUS FERRUM-EQUINUM*).

BY BRUCE F. CUMMINGS.

DURING the past winter I explored, with two friends, some disused manganese mines (in what is known as the Pickwell Down Sandstone) which are situated in a deep valley running from east to west, about nine miles north-east of Barnstaple. I had the good fortune of being quite successful in the object of the exploration, *viz.* the finding of Bats. However, I met with only *Rhinolophus ferrum-equinum*, but an acquaintance had some years before found Lesser Horseshoes and one other species in these same mines.

The mines were not extensive, but long enough to add a tinge of adventure to our expeditions. They consisted of three borings running into the side of a hill, the entrances being on a level with the ground outside, and of four or five shafts, into which we were lowered by means of a rope. One passage (the largest of all) is impregnable on account of water; in places it must be, I should think, over seven feet deep, so wading was out of the question.

I met with only about six specimens, two of which I secured. The first was in what I will call boring A, hanging from the top of one side of the passage. All the others hung from the same part, never from the roof, and usually with their faces to the wall. As soon as I saw it, it drew up by bending the joints of the hind limbs. Thinking it was awake, I quickly boxed him. But later Mr. T. A. Coward, to whom I am indebted for help and advice and a valuable correspondence on the subject of Horseshoe Bats, informed me that it draws up in this way even when asleep, and this I soon found to be the case. This is apparently a pure reflex action.

I kept this Bat in captivity between December 24th and 29th, 1906, on which date it died. I kept it in a very cold

atmosphere—in fact, too cold—for it never woke up, and died in its sleep.

On Dec. 29th I visited the caves again. Boring A contained no Bats. Boring B, close at hand, contained two, one on each side of the passage. On entering this cave again in the evening we found that one Bat had disappeared; the other was just unfolding its wings, and almost immediately flew between my legs and out into the open air, or it appeared to do so, as we did not notice it anywhere on the walls in returning to daylight. These Bats evidently were *not* hibernating.

On Jan. 5th I went to the caves again. In boring B one Bat, which was considerably smaller than the other, was hanging in exactly the same position at the same spot on the wall. The large specimen took flight before we could approach it, and went to the entrance of the hole, but, disliking the daylight, returned and pitched, when I caught it. Then we took both to a room in the deserted mine buildings, where we had a good look at the strange little animals. The large one was of a pale buff colour, and about $12\frac{1}{2}$ in. across the wings. The colour of the fur of the small one, which was not much more than 8 in. across the wings, was dirty grey. Unlike the other, it made an attempt to walk on the table, but it was a clumsy gait. Both rose from the ground easily, and flew around the room. We took them back to the mouth of the boring, and they went in. It was now getting dark, and on our following them into the hole, after a few moments' grace, they came out and disappeared. But when, before leaving, we went into boring A, previously empty, there were two Bats flying, and we concluded that they were the same pair we had just driven from boring B. On later visits, as I shall show, I repeatedly noticed Bats leaving the caves at dusk on warm nights, but these seemed most reluctant to go abroad, and I rather believe that this was possibly on account of the rain, which was falling very thickly, though the temperature was very mild.

On Jan. 11th entered borings A and B, which were empty. In B, I picked up, at the end of the passage, several elytra of a wingless geodephagous beetle belonging to the genus *Pterostichus*, possibly *P. niger*; also remains of certain moths (*Scotosia dubitata* and *Gonoptera libatrix*), several dipterons (including, I believe, *Eristalis tenax*, or some closely allied species), and a few remains of

the Cave-Spider (*Meta menardi*). This goes to show that the Bats feed in the caves, as it is very unlikely that they would find *M. menardi* outside. I also saw a good many specimens of both the before-mentioned species of moths on the walls and rotted timber in the caves, where they were hybernating. I saw none outside the caves. The same remark applies to the dipterons. The beetles were probably taken in summer, but it is, of course, an open question as to how the Bats caught these purely terrestrial insects.

At 4.30 p.m., following the advice of Mr. Coward, I took up my stand outside the large water-logged boring C, and waited. At 5.20 a small Bat flew in, and a few minutes later a Greater Horseshoe flew out. At 5.25 another flew out, and disappeared. It was a very mild day.

I watched outside this cave again on Jan. 16th, at dusk, when the temperature stood at 46° F., and at 5.20 I saw two Bats, evidently Horseshoes, fly down across a field on my left. Clearly they had left the mines by way of the shafts higher up the hill. Insect-life, I observed, was on that night in plenty, and the Bats must have found no difficulty in getting food.

On the 19th we arrived at the mines with ropes. We got down one shaft, thus gaining access to the longest passage in the mines. My friend, who went down first, found a Bat almost immediately, and I thought that this augured well, but it proved to be the only one in the passage. Underneath the spot where it was hanging was a little heap of excrement. I noticed similar heaps in the other caves. It would thus appear that the Bats prefer hanging from the same spot. Later observations rather confirmed this view.

We watched outside boring C between 5.10 and 5.36, but in that time no Bats flew out. It was a cold day, with a south-east wind. Borings A and B empty as before. Through being disturbed they finally deserted these two holes.

Watched outside again for some time on Jan. 23rd, when it was freezing all day in the shade, but saw no Bats come out. This leads one to conclude that the Greater Horseshoe Bat goes abroad regularly in mild weather in winter, yet in the cold weather it stays inside the caves.

The Bat which was caught on the 19th I brought away with

me, and kept alive for ten days. It lived in a lumber-room, where it was allowed to fly pretty freely. I observed its partiality for certain spots, to one or another of which it regularly returned after being disturbed. Mr. Coward said that with his Bats he noticed the same to some extent, but after a while they became less fastidious, and would hang up anywhere. As is well known, it always reverses, *i. e.* turns a sort of somersault before hanging up by its hind limbs. This aerial manœuvre is a very clever feat. It never pitches head upwards. It used to crawl about the walls a good deal, but always head downwards. When thus climbing it made use of its wing-claws.

One most noticeable point was the incessant nervous twitching of the ears. It was more than a twitching—it was a series of distinct though rapid movements of the ears, which gave the little animal a very peculiar appearance.

When hanging the interfemoral membrane is bent back over the back, and when flying it is stretched, of course, between the hind limbs, but with the tip turned up somewhat. This is difficult to see, but I chalked the tip of the membrane and the ankles of the legs, and, by judging the relative positions of the chalk-marks when it was on the wing, I was able to observe that the tip was slightly turned up, as was indeed to be expected.

When placed on the ground it rises with the greatest ease, and several times when flying it pitched on the ground with the wings sprawled out at full length, and the belly resting on the ground. Mr. Coward informed me that this was a pronounced habit with this species. When taking flight again from this position, I believe it uses its hind limbs as a “push off.” I only noticed an attempt to walk on two occasions. It once gave me a sharp nip with the teeth, and, although I found it rather spiritless, it never got really tame.

It looks a curious animal when hanging up asleep, with its body enveloped in its wings, and its remarkable face ensconced between the two wing-joints, and its long thin legs stretched out straight, and kept close to each other. As has been pointed out before, it bears a resemblance, when in this position, to a *pupa* of the *Lepidoptera*. When sleeping the ears are generally tucked in under the cavity formed by the antebrachial.

The enveloping wing-membranes must be very useful in preserving warmth.

I found it took no notice of fumes of camphor and ammonia, &c., solutions of which I presented to its nasal appendages by means of saturated cotton-wool. Bright gas-light never troubled it in the least, and Mr. Coward informed me that even a strong acetylene lamp or an explosion of flash-light powder has little effect on these Bats. It could hear my finger passing gently over my forehead, when I held my head a little more than nine inches away, for it would immediately look up, or move its ears; anything like the rattle of cup and saucer made it shake throughout the body. Its sensitiveness to sound was remarkable. If the slightest noise was made when it was hanging awake from the wall, suddenly up would go its head, and the ears would vibrate for a short time, when it would subside and gradually fall asleep.

It is an interesting sight to watch it "turn in" after flight, *i. e.* fold its wings around the body in preparation for sleep. It hangs a little while with the wings down beside the body like an ordinary Vespertilionid, then in a quick movement it spreads them out around the body, at the same time forcing the fore arm over the back. The ears are taken in under the antebrachial. Occasionally one is left outside, but after an interval it is withdrawn under cover; sometimes it is left out altogether. My Bat had a predisposition to folding the left wing under the right, as this was the position of the wing nine times out of the eleven I especially watched.

One curious point was noticed with regard to the times of waking of these Bats in captivity. Under natural conditions I found them on the wing between 5 and 6 o'clock; but the Bat I kept in captivity woke up a little before 10 o'clock every evening, though the time varied somewhat. Mr. Coward found the Bats waking between 4.45 and 6 under natural conditions, but in captivity frequently as late as 11 o'clock, or even later. This is an interesting fact, but I cannot explain it.

During the cold of the latter end of January my Bat slept for a longer period each night, and on the night of Jan. 23rd I could not wake it. I tried every means I could think of, but it slept on, though it moved; for instance, it "drew up," folded back one

wing when I pulled it out, climbed about the wall when I attempted to dislodge it, and turned over when I placed it on its back on the floor, but nevertheless it seemed asleep and unconscious, and its eyes were closed. However, as soon as I took it to a warm room it very quickly came round, and opened its eyes, vibrated its ears, and lifted its head, and then flew round the room.

On several occasions during its captivity it made a sharp clicking sound, probably a snap of the jaws. I found it a very thirsty little creature, and Mr. Coward remarks that his Bat "drank like an old toper." I was unable to persuade it to eat readily. It fed once or twice when I was not at hand. Mr. Coward observed that his captives, when they fed, did not feed on the wing. He suggests that this species, as a rule, does not devour its prey when on the wing, but conveys it to some spot where it can hang when feeding. This was "the invariable method" of his captives. He has sent me an analysis of the dung of these Bats. The dung was probably deposited in the warmer months, and the analysis was prepared by Mr. Newstead. Among other things, it states that about—

68 per cent. of pellets examined contained remains of Lepidoptera.			
66	"	"	Coleoptera.
24	"	"	Diptera.
$7\frac{1}{4}$	"	"	Arachnida.
$2\frac{1}{2}$	"	"	Hymenoptera.
$2\frac{1}{2}$	"	"	Trichoptera.

Of the Coleoptera, at least 44 per cent. were of the genus *Geotrupes*.

On my fourth visit to the mines (Jan. 11th) my light suddenly went out, owing to a draught as I stood in the largest boring C on the edge of a deep pit of water. I was left in complete darkness. I heard the echo from far away in the long dark passage stretching in front as each drop of water fell from the roof into the pool below. It was uncanny. Each drop sounded distinctly, and had a mellow musical ring that was fascinating—more fascinating in the darkness. I felt well-nigh isolated. It is said that absolute isolation very quickly induces madness, but that horrible sensation of absolute isolation is rare, if it exists. Except for the water, everything was as still as summer on the downs. But presently I began to detect a slight indescribable noise, so slight

that at first I thought it issued only from my own head ; yet it grew gradually into a loud, sharp clicking, mingled now and then with squeaks and curious purring sounds—evidently the cries of Bats of some species. But I must not stay longer describing effects and sensations. I promptly relit my candle, and reached *le grand air*. My jacket (an engineering overall) was covered with red slime and drippings of both water and grease !

From these somewhat limited experiences, I arrived at the following conclusions, which may have to be modified after further observation. In a measure most of them agree with those suggested by Mr. Coward in his paper communicated to the Zoological Society in April. Mr. Coward's observations were made in Somerset, some time previous to mine in Devon :—

(1). The Greater Horseshoe Bat (*Rhinolophus ferrum-equinum*) does not hybernate, strictly speaking—at least, in the warm winter climate of North Devon.

(2). In mild weather they leave the caves, and go abroad to feed.

(3). In very cold weather, or during heavy rains, they probably remain inside the caves, and do not go abroad.

(4). In this cold weather they probably feed on the insect-life contained in the caves, and on the spider *Meta menardi*, which lives in the caves, and which the Bats would not probably find outside.

(5). They show a tendency to return to the same spot to hang up and roost.

(6). Neither strong light nor strong smells have much effect on them, but they are very sensitive to sound.

I hope to visit the mines or others in the neighbourhood when the Bats are breeding.

THE CALIFORNIAN CONDOR.

"Unguibus et rostro tarda trahet ilia vultur."—*Ovid.*

BY GRAHAM RENSHAW, M.B., F.Z.S.

THE indirect extermination of animals, due to what may almost be termed accidental causes, has in recent years become only too rapid, and still continues. The classical instance of this is perhaps the extinction of the Rhytina, or Sea-Cow, of the Northern Pacific, killed off for provision by men who were primarily mere fur-hunters. Here one has a wheel within a wheel, for the loss of the Rhytina also meant the extinction of the *Cyamus rhytinæ*, a sea-louse, parasitic on its hide, and of an unknown ascarid worm, which infested its stomach. In modern days the flightless Kakapo, or Ground Parrot, has all but vanished under the attacks of Stoats imported to destroy the New Zealand Rabbits; the West Indian Doves have been decimated by the Rat-hunting Mongoose; the Haytian Solenodon—that curious insectivore—has become so rare that in five months a recent writer obtained but one specimen—thanks again to the Mongoose. Another instance of indirect extermination is the gradual disappearance of the Californian Condor.

The Californian Condor (*Gymnogyps californianus*) is a fine bird, measuring in good specimens nearly eleven feet in expanse of wing, and weighing from twenty to twenty-five pounds. The beak is whitish or pale yellowish, and is three and a half inches long; the nostrils are small, and pointed anteriorly; the head is small, bare, and smooth, being, together with the bare neck, of a yellow or orange colour. General hue of the plumage sooty blackish; upper wing-coverts tipped with white; under wing-coverts *entirely white*, a character by which the species is at once recognized. The legs are blackish brown; the closed wings reach a little beyond the tip of the tail.

The eggs of this rare Condor are greenish white; two is the number in a clutch, but sometimes there is only one. The nest

is an untidy structure, built in the wildest part of the pine woods, on lofty trees overhanging a precipice, or on the very rocks themselves. It is composed of thorny twigs and grass. The same pair use the nest in successive years, but do not trouble much about mending it as it becomes worse for wear. Incubation takes from twenty-nine to thirty-one days. The nestlings cannot leave the nest for five or six weeks, and have the bill and bare neck blackish instead of orange. I have seen a photo-engraving of a young bird which, with its curved beak, humped shoulders, and body swathed in down, marvellously recalls the Dodo as figured by the old voyagers! The sprouting quills in the wings, the big feet, and the absence of the tail heightened the resemblance, and one could well understand how the old ornithologists were at a loss whether to class the Dodo as vulturine, struthious, or rasorial.

To-day the Californian Condor—the largest bird of prey inhabiting the United States—is represented by a miserable remnant lingering in South-west California; its distributional area, once extending as far north as the Fraser River in British Columbia, is now a mere dot on the map. In the old days it abounded every spring on the Columbia River, feeding on the Salmon cast up on the shore. It hung round the Indian villages for the sake of the offal thrown away, and, together with Ravens and Turkey Buzzards, visited the waterfalls and cascades of the Salmon rivers. The fish, being obliged to take leaps at these places in their progress along the stream, often landed themselves high and dry amongst the bushes, and thus provided a meal for the expectant Condors. The present species also fed on carrion, and was very voracious. When gorged the birds perched on decayed trees, and, with necks retracted and wings drooping about their feet, presented a finished picture of satisfied gluttony. When on the ground this Condor walked with a strut, like a Turkey, but was obliged first to run or hop several yards before launching itself into the air. Once on the wing its flight was slow, steady, and graceful, its noble proportions dwarfing the Turkey Buzzards in the same valley to mere Swallows.

“Their quills are used by the hunters for tobacco-pipes,” observed Mr. David Douglas many years ago. Recently the Mexican and Indian gold-seekers have well-nigh exterminated

the Californian Condor for the paltriest of reasons—because, forsooth, their magnificent hollow quills afforded rough-and-ready purses for carrying gold-dust! Again, the hot summer compels the ranchmen to drive their herds into the cool valleys, where many cattle and sheep are destroyed by Puma and Grizzly Bear. To get rid of these giant vermin the half-eaten carcasses are poisoned, and the innocent Condors, feeding on them, are destroyed in hundreds. In his day (1830), Mr. Douglas described the giant birds as swarming on a carcass, so that a single doctored Sheep might well deal out as deadly destruction as a Maxim-gun. The range of the Californian Condor was never very extensive, including only California, Oregon, Washington, and part of British Columbia; essentially a forest dweller, its home is now limited to the wild gorges of the Sierra Nevada.

The present species was first described under the name of *Vultur californianus* in the ninth volume of the 'Naturalist's Miscellany' by Dr. Shaw. The type-specimen was deposited in the British Museum by Mr. Menzies, who had accompanied Captain Vancouver's expedition. Many years afterwards a pair were shot by Mr. Douglas; these passed into the possession of the Horticultural Society, and the Council subsequently presented them to the Zoological Society's Museum. At some time previous to 1827 a living bird, said to be a Condor, was brought to Europe, and may have belonged to this species; its plumage, however, was said to be *brown*, so that it may either have been immature, or else belonging to some other species, such as the rare and little known Brown Condor of Ecuador, not to be confounded, of course, with the Condor of the Andes. On June 22nd, 1866, Dr. Colbert A. Canfield, of Monterey, California, presented a Californian Condor to the London Zoological Gardens, through the agency of Prof. Baird. Capt. J. M. Dow had brought it across the Isthmus of Panama, and it appears to have been the first example imported alive into this country. The specimen was figured in the 'Proceedings of the Zoological Society' for 1866; it was already a "scarce bird." As regards recent examples, it may be mentioned that after four years' efforts the New York Zoological Society succeeded in obtaining a young bird, which had been taken from the nest by a boy. It arrived at the Zoological Park on March 14th, 1905. In January, 1906, *Zool. 4th ser. vol. XI., August, 1907.*

it had assumed adult plumage. Tame, and even affectionate, the bird was one of the choicest rarities in the collection. A photograph of it was published in the Annual Report for 1905, showing the Condor standing on a perch with lowered head and expanded wing, apparently inspecting some object in front of it. The characteristic white under wing-coverts are shown in the photograph. This valuable bird was killed by swallowing an indiarubber band given by some crazy visitor. Happily a second specimen had been purchased a few days before, and is now in the collection, protected from the public by two screens of wire-mesh.

A flock of no less than twenty-six individuals was seen as late as 1894 by Mr. Stephens, and the species is thought to be holding its own in the remoter mountains. It is also protected by law, but its ultimate survival seems to depend very much on chance, and to enforce the law in the inaccessible districts which constitute its last stronghold would be a difficult matter. Now limited to the coast ranges of California, it would be a thousand pities if this fine Condor, as large as the winged giant of the Andes, should share the fate of Steller's Cormorant and the *pigeon hollandais*, of the Réunion Starling and the Labrador Duck. These have all utterly vanished, and the monarch of the western sierras—Shaw's "*vultur niger, rostro albido*"—may be the next to disappear. *Res in cardine est.*

FIELD-NOTES ON SOME OF THE SMALLER BRITISH MAMMALIA.

BY GORDON DALGLIESH.

THESE notes are a continuation of those published in the preceding volume of 'The Zoologist' (1906, p. 168). Nearly all my observations are confined to the south-west of Surrey.

NOCTULE BAT (*Pterygistes noctula*).—This species I did not observe this year (1907) until May 11th, which is an exceptionally late date, owing perhaps to the backwardness of the season.

BARBASTELLE (*Synotis barbastellus*).—On May 6th a Bat came into my garden at Witley at 5.30 p.m., and stayed for a few minutes, but quite long enough for me to see that it was undoubtedly a Barbastelle.

MOLE (*Talpa europæa*).—I have a very pretty variety of the Mole, taken in Glamorganshire, the general colour of which is a clear cream, with the throat and under parts deeply suffused with orange-red. I caught one at Witley, in May, that is of the normal colour above, but has the whole under side a rich golden brown.

COMMON SHREW (*Sorex araneus*).—On April 4th, 1906, I found in one of my traps the hind foot of a Shrew, and a few mornings afterwards a Shrew with a hind foot missing was caught. This in all probability was the owner of the foot. I took a specimen this year (1907) in June, with two patches of white on each side of the head. An exceptionally large female caught in June measured (in millimetres), H. B. 80; tail, 40.5; H. F. 12.5; ear, 8.

PIGMY SHREW (*Sorex minutus*).—This little Shrew I have found not at all uncommon, and Mr. Oldfield Thomas informs me that it is far from rare throughout the country. It is not often trapped, owing, I think, to its extremely light weight enabling it to take the bait without springing the trap.

DORMOUSE (*Muscardinus avellanarius*).—On May 9th a Dor-

mouse was caught in my garden at Witley, in an old nest of a Song-Thrush. It was in a complete state of torpor. It died shortly afterwards from shock, and on skinning it I found it extremely fat.

YELLOW-NECKED MOUSE (*Mus flavicollis*).—The name given for this Mouse by Barrett-Hamilton in his excellent monograph on "*Mus sylvaticus* and its Subspecies" (P. Z. S., April 3rd, 1900) is De Winton's Mouse (*M. sylvaticus wintoni*), and at one time I was also inclined to agree as to its being merely a subspecies or variety; but I now think if *Microtus orcadensis* and *Evotomys skomerensis* are entitled to full specific rank, then *Mus flavicollis* must be granted it also. Therefore I prefer to use the name adopted by Mr. de Winton (Zool. 1894, p. 441). I have lately obtained several specimens of this Mouse near Witley. On looking at a Yellow-necked Mouse one cannot fail to be struck with the difference to that of the Common Wood-Mouse (*M. sylvaticus*). It has, on the whole, a decidedly more thoroughbred look, besides its superior size and brighter colour, to that of its near ally. In the typical *sylvaticus* the length of the tail *never* exceeds that of head and body, but, on the contrary, is always shorter. In *flavicollis* the tail nearly always *exceeds* head and body, rarely equalling it, but is *never* shorter. The yellow pectoral band is present more or less in quite young specimens. De Winton's measurements for this Mouse are—head and body, 108 mm. to 115; tail, 108 to 115; hind foot, 24; ear, 18. The skull is larger and stronger than *sylvaticus*; length, 27 mm. and upwards (Barrett-Hamilton).

The following is a table of measurements (in millimetres) of seven selected specimens of my own collecting:—

No.	Sex.	H. B.	Tail.	Hind foot.	Ear.	Skull length.	Skull breadth.
1	Male	100	115	25	15	broken	broken
2	Male	110	110	25·5	13	29	13
3	Female ...	111	111	23	18	30	15
4	Female ...	107·5	108	23	18	broken	broken
5	Male	100	105	22	16·5	"	"
6	Female ...	98	102	23·5	17·5	"	"
7	Female ... (juv.)	71·5	79	14	14	"	"

For comparison, I give the same of seven selected specimens of *Mus sylvaticus* :—

No.	Sex.	H. B.	Tail.	Hind foot.	Ear.	Skull length.	Skull breadth.
1	Female ...	88·5	88	23	18	broken	broken
2	Male	112·5	83·5	24	16	"	"
3	Male	100	96·5	23·5	13	27	13
4	Female ...	95	85	23	20	broken	12
5	Female ...	90	damaged	23	13	24	12
6	Female ...	103	83	23	13	20·3	13
7	Male	97	88·5	25	17	broken	broken

From the above tables it will be seen that the Yellow-necked Mouse has a longer tail than *Mus sylvaticus*, and this difference alone would entitle it to specific rank, according to many zoologists, for we see that in the case of other small mammals measurements only can be relied on for discriminating the species; for instance, the immature Common Shrew and adult Pigmy Shrew so closely resemble each other that they can only be distinguished with satisfaction—so I am informed by Mr. O. Thomas—by the measurement of the hind foot, that of the Pigmy Shrew being much smaller. Again, the Skomer Vole differs only from the Bank-Vole in its superior size, though it is true the colour on the lower back is more grey; but apparently colour would go for nothing, as Capt. Barrett-Hamilton says, writing of *Mus sylvaticus wintoni*, that the yellow pectoral band may or may not be present, which we ourselves would have thought to be a distinguishing character, and I agree with and follow Mr. de Winton in giving *M. flavicollis* full specific rank. The most beautiful specimen of *M. flavicollis* I have ever seen is one in my possession, taken during the winter of 1906 in Gloucestershire. I append a description :—Upper parts fawn, mingled with long black hairs; a broad black dorsal line; line of demarcation clearly defined; under parts snow-white; a small yellowish pectoral band; under surface of tail pure white. I have found both *M. flavicollis* and *sylvaticus* in moult in May.

BANK-VOLE (*Evotomys glareolus*).—This little animal is far more aquatic in its habits than is generally supposed. I have alluded to its partiality for swampy ground in a previous note

(Zool. 1906, p. 172). Swampy woods, with the ground composed of black slimy mud, covered with marsh-marigolds and clumps of coarse grass, with here and there pools of water formed by the rain, is one of the favourite haunts of the Bank-Vole. I once trapped one in a ditch of running water in a trap intended for a Water-Shrew, placed on a stone in the middle of the water, showing that the Vole to reach the bait must have swum to it. On planting two bulbs in pots, and putting these on the top shelf of a greenhouse, I discovered shortly afterwards these had disappeared, having been scraped out by some animal. A trap was set, and a Bank-Vole caught. Now, the Vole to reach the pots must have climbed quite four feet up, and the distance between each shelf was a foot, and so, as there was no other means of getting at the pots, the animal must have sprung from shelf to shelf. Showing some skins of the Bank-Vole to a friend of mine, he said he had seen some like them, only very much larger, in a wood in Pembrokeshire. These might have been the Skomer Vole, as Capt. Barrett-Hamilton, who described this species or form, entertained hopes that it might be found on the mainland.* Skomer Island is, it might be as well to state, just off Pembrokeshire. Mr. Oxley Graham records a very large Bank-Vole found in Kent (Zool. 1898, p. 477), and gives the dimensions as "6½ in. from tip of nose to tip of tail; length of tail, 2 in." He goes on to say that the specimen was too decomposed to preserve. This might possibly have been identical with the Skomer Vole, and, as I have said before, in all probability this large Vole may occur on the mainland; field naturalists visiting remote districts of Wales and other parts of the country should be on the look-out for it.

* 'Proc. Royal Irish Academy,' vol. xxiv. sec. B, pp. 315-19 (1903).

OBSERVATIONS OF AN ATTEMPT OF THE SWALLOW TRIBE TO WINTER IN SOUTH HANTS DURING 1906-7.

BY HARRY BEESTON.

(Concluded from p. 271.)

IF we again refer to the table (*ante*, p. 270), we see that during the first fortnight of December, with the exception of *one* day (3rd), favourable winds prevailed, and especially so on the 6th and 7th, when a strong wind from N.E. was in force. Why, I ask, did not the birds depart then? There was not only this advantageous wind to assist the birds on their journey, but there was an *additional* reason for departure—*viz.* a very sharp frost on the night of the 6th—yet the birds remained.

From the 8th to 11th strong cold winds blew, with six degrees of frost on 10th, and seven degrees on 11th; still the brave birds delayed their departure. From 12th to 18th the weather was fairly open and mild, but day by day, vigorous and strong, the Martins continued to skim up and down stream on the feed.

A steady breeze from the N.E. prevailed from 19th to 23rd, and again gave the birds a favourable opportunity, but they evidently declined to depart, or their instinct for migration had died out—and so on from day to day they remained; and it is quite evident that it was neither a wind from the N.E., N.W., nor from any other quarter, for which the birds waited. Strong and persistent breezes were not wanting, both at the latter end of November and the beginning of December.

We must look for some other reason than mere wind to account for the abnormal departure from the generally accepted ideas regarding the migration of our summer birds. I do not say that wind is not to some extent an important factor, but in my opinion there are other and *more potent* causes, which largely control the movements of migratory birds.

It has been suggested "*before the end of November the migratory spirit of a Swallow would under ordinary conditions be at rest.*" What explanation can be offered regarding the following instance, which seems completely to confute this proposition:—While staying at Kettering, at Christmas (1906), I was shown three young Swallows (not Martins), nearly fledged, preserved in spirits, which were taken from a nest on Dec. 4th. The previous day they were being fed by one of the parent birds, but either from *the bird's instinct to migrate*, or some other cause, the young were left to perish.

Now, presuming that the mother (?) bird left her young to die of starvation in order to gratify the impulse of migration, why should she do so more than Swallows in Hampshire? There was more reason for her to remain than for the southern birds to delay their departure.

To return to the discussion of the Hampshire birds—respecting the Swallow last seen on Dec. 21st—there seems no reason whatever for believing "*that the wind had brought him in a wrong direction.*"

From certain well noted marks on the plumage this was one of the Swallows which had been under observation since Nov. 25th. It was a male adult bird in full plumage, and one of the parents of a family of five reared in a cowshed near the stream where these observations have been made. On Nov. 27th the *young* birds had all disappeared, only the *two* adult birds remaining; and on 29th the male bird only was left, and remained on until Dec. 21st, when it undoubtedly perished. But of the Sand-Martins—the first of which was observed on Nov. 25th, flying about with the Swallows, and on 29th was joined by another—these are the birds which were under observation so long, although one disappeared before the other.

On another point I do not agree with the suggestion that the "*birds were gradually starved while the winds were blowing from quarters which their instinct rightly bids them . . . to disobey.*" As I have shown, so-called *favourable* winds blew, which would have carried them safely away, *but they chose to stay*, and at least *one* had not starved (when these notes were penned); and this is one of the most remarkable and extraordinary things about this puzzling feat of summer birds trying to winter in

England. The incident is unique, I presume, in the annals of ornithology.

Neither is the following inference correct: "*It is not improbable that at the very last the right wind blew, and carried them in a few hours to summer climes.*" No! One of the two Martins doggedly remained on, and undoubtedly perished on Jan. 23rd. I have no doubt whatever that the birds remained in spite of favourable winds for a good and sufficient reason, which I will endeavour to explain; and I am of the firm opinion that *the birds deliberately chose to remain, and that wind-direction had nothing whatever to do with their stay.* The predominating factor, in my opinion, was *a plentiful supply of proper food*, and this abundance is accounted for in several ways. The locality favoured by the birds is well sheltered, as already stated, and the climate of the district is mild even in winter, and insects abound in the immediate vicinity of the stream, which the birds haunt so closely.

Without doubt this stream is the secret of the abundance of insect-life. A part of the water of the stream comes from a number of springs about a quarter of a mile away, but the volume of water is greatly augmented by the surplus water from the pumping-station of the waterworks, and a large quantity of *heated water* enters the stream from two parchment works. Now, as this heated water passes along the stream it produces a luxuriant mass of vegetation for a considerable distance before entering the sea, and in cold weather a perceptible mist is observable several feet above the surface, showing that the water is several degrees higher than the surrounding air. This humid condition favours the rapid and constant production of insect-life, so that it is no uncommon thing to see clouds of gnats hovering over the stream and its vicinity in the depth of winter. One only needs to see the numbers of birds, constantly on the feed along the banks, to know that suitable food is there in plenty.

To watch half a dozen Pied Wagtails in different places along the course of the stream busily feeding is a common sight every day. They fly (or flutter) down stream, and occasionally hover in the air just clear of the surface, and snap up the insects from the water; curious and amusing is it to watch them as they

endeavour to balance themselves while hovering by means of their outspread tails. During the late winter it has been quite a common sight to see numbers of both Pied and Grey Wagtails hawking for flies over the water in the manner described.

Speaking of the Grey Wagtail reminds me of a fact I omitted to mention with regard to migration here on the south coast. Scarcely, I should say, in any other part of the British Islands can it be said that two great migratory movements—*viz.* the return southward of our summer visitors, and the arrival of our winter migrants—overlap, as is the case in this locality. It has been noted by local ornithologists that Geese and Ducks from far Lapland and Siberia often arrive on their feeding-grounds in Langstone, Emsworth, Chichester, and Pagham Harbours *before* the Swallows and other summer birds have departed in the autumn. On the other hand, the same overlapping occurs again in spring. In 1904 and 1906, before the winter migrants had returned northwards, they were overtaken, so to speak, by the returning spring birds. In both years *Sand-Martins* were observed as early as March 24th, the *Chiffchaff* was seen and heard on March 17th, 1906, and the *Wheatear* was reported on March 12th, 1906.

It is very noticeable that these extremely early birds are seen either on the banks or in the near vicinity of the same stream where the Martins lingered so long this year. It seems almost certain that the birds know this particular locality as a good feeding-ground, and return to it year after year. In my opinion it is neither accident nor mere coincidence which can in any way account for the phenomena.

If the Sand-Martin last seen on Jan. 23rd had managed to survive until February it would have been possible to establish the extraordinary record of the Swallow tribe *for every month of the year* for this part of Hampshire. As it is, the record is good for eleven months out of the twelve.

In conclusion, I firmly believe that if our winters (in the south) were only a few degrees milder, and the birds—not merely the Swallow tribe, but others—could always be sure of obtaining suitable and abundant food, they would remain to winter with us, as these records tend to prove.

NOTES AND QUERIES.

MAMMALIA.

Mus flavicollis in Suffolk.—Having given out that “mice and rats and such small deer” would be acceptable for a young Tawny Owl, which I thought would be safer in our keeping here than in the hands of the boy who possessed it, a bag containing three Mice was brought to me on June 19th. Two were common House-mice, but the third was the finest *Mus flavicollis* I have ever seen—nine inches in total length, and very richly coloured. Unfortunately it had been kept too long even to be made into a skin. — JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

AVES.

The Cuckoo (*Cuculus canorus*) near Aberdeen.—The Cuckoo, in 1907, was heard here on May 7th, but there were not so many as usual, though there was a considerable amount of calling, which continued generally until near the middle of July, one being heard as late as the 19th. The great feature of the year, however, is that there has been but one young Cuckoo seen in this neighbourhood, and it seemed to be an average bird, and of the average colour. This is one of the most remarkable events which has come under my notice. Regarding the wide area which these birds occupy during the year, it is impossible to say how and why the tide has thus turned in 1907. Did the cold May of 1906 have much effect, or is it because the season became so unpropitious here at the end of May and in June? According to my observations there has been a fair nesting season among other birds, though, of course, I cannot vouch for all; so that this incident of the Cuckoo becomes very phenomenal. So far as the foster-parent, the Meadow-Pipit (*Anthus pratensis*), is concerned, they were nesting early and successfully, so that they must have been relieved of a considerable strain upon their resources.—WM. WILSON (Alford, Aberdeen, N.B.).

White Variety of Nightjar.—I have just received a perfectly white variety of the Nightjar, shot here on Aug. 9th. It is in good condition, and has neither spot nor stain of colour or markings anywhere. Numbers of birds are, of course, well known to furnish colourless variation,

but this is the first instance of it that has come to my knowledge (nor can I find any previous record of it) in respect to the Nightjar.—O. PICKARD-CAMBRIDGE (Bloxworth Rectory, Dorset).

Common Buzzard (*Buteo vulgaris*) on the Calf of Man.—About 20th June last a Port Erin boatman observed a large Hawk asleep on the rocks at Amulty, on the west side of the Calf. He crept up to it and secured it. It was taken to W. Collister, boat owner, of Port Erin, who kept it alive for more than a week, during which it ate very little. On its death it was sent to be stuffed by Mr. G. Adams, of Douglas, who showed it to me. It is a mature bird, handsomely marked. This is the second Manx specimen recorded, the first having been obtained in October, 1902, in the southern part of the main island.—P. G. RALFE (Castletown, Isle of Man).

Clocking Hen and Young Partridge.—About a month ago a farmer in this district had some "Clockers" fastened up in a pen, when one morning one of the hens escaped, and was missing for the day. She returned in the evening to the stackyard, accompanied by five young Partridges, which she has brooded ever since. The little things will allow no one to approach them, though they will feed from the same dish as their foster-mother. It would be interesting to know how the old hen came by the young Partridges. In a field opposite the farmstead a pair of Partridges have bred this year, and the old birds are often seen with only six young. The weather at the time when the old "Clocker" escaped had been very cold and damp. The only explanation I can offer is that the five young Partridges had been found by the old "Clocker" in a benumbed condition while scratching about the hedge of the field where the Partridges had their nest, the rest of the brood having gone off with their parents; and that she had brooded them, brought them round, and then taken them back with her to the farm.—J. S. T. WALTON (Sunniside, Stocksfield-on-Tyne).

Notes on Nest-Boxes.—Our list of tenants during the past season includes the Great Tit, Blue Tit, Nuthatch, Tree-Sparrow, House-Sparrow, Starling, Tawny Owl, and Stock-Dove. On March 13th the Owl had two eggs in a box put up in a yew tree quite close to the house, but deserted them, as the entrance-hole was hardly large enough to allow her to get out easily. However, a brood was brought off later on in an old alder-stump not far away, and we still (August 1st) hear the well-known "kee-wick" of the young birds in the garden every night. There was also a nest in the church-tower in the same place, as recorded in 'The Zoologist' for 1905 (p. 263), which came to nothing,

as two eggs were bad, and an owlet disappeared when only about two days old. A Stock-Dove had two eggs in a box on March 4th, which is our earliest record for this species. There were a pair of young ones on the 17th, but a few days later they had been taken by some marauder, probably a Rat. The first nest of the Nuthatch was a failure, as an egg was broken by a piece of clay falling into the box, and the bird deserted the remaining six. These were taken, and she returned later on, bringing off a brood of five—a welcome addition to our Nuthatch population. Last year we had about a dozen nests of Tree-Sparrow in the boxes, but this year only one, and the only explanation seems to be that the birds were killed off during the hard weather. We had one House-Sparrow's nest in a box in the kitchen-garden, which, it is hardly necessary to add, was destroyed. — JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

Notes on Manx Sea-Birds.—At the time of the publication of my 'Birds of the Isle of Man,' I was aware of one Manx colony only of the Kittiwake, but during this summer Mr. F. S. Graves and myself were told by a Port St. Mary boatman that "Pirraghs" nested at another spot near the south end of the island, and later I was able to locate the colony—perhaps fifty pairs—in a cavernous recess among high precipices. The nests are, as usual, comparatively low down on the cliffs, many Guillemots on the ledges near, and numbers of Puffins on the green brows above. There has been a great extension of the breeding range of the Puffin on this southern coast within the last few years; whereas it was formerly nearly confined, on the main island, to the top of the cliffs adjoining the Calf Sound, it now swarms in continuous colonies for more than a mile northward past the "Sugarloaf," and the place called "The Chasms."—P. G. RALFE (Isle of Man).

MOLLUSCA.

Carnivorous Propensities of a Slug.—Referring to the note on this subject (*ante*, p. 277), the following may be of interest to your correspondent, Mr. Gordon Dalgliesh:—Mr. W. A. Gain, writing in the 'British Naturalist,' November, 1891, p. 225, speaking of *Arion ater*, says: "These Slugs attack their weaker brethren, gnawing the skin, and not unfrequently devouring the greater part of the victim"; and again, September, 1891, p. 194, *ibid.*, he says: "Our two species of *Amalia* are exceedingly hardy, very voracious, and nearly omnivorous." —FRANK A. ARNOLD (48, Martell Road, West Dulwich, S.E.).

NOTICES OF NEW BOOKS.

Rambles of an Australian Naturalist. Written by PAUL FOUNTAIN from the Notes and Journals of THOMAS WARD. John Murray.

THE real author of this work is Mr. Ward, a Queensland stock-farmer, and the numerous and excellent natural history observations should, when referred to, be ascribed to his name. Mr. Fountain has apparently been more than editor, and has collated Mr. Ward's notes. It is necessary to make this clear, as the book is a storehouse of field observations, and is certain to be largely quoted. As regards the general physiography of Australia, we know of no other book that in an incidental manner gives us such an impression of Australian scenery—drear, and otherwise. And man is changing the scene; the giant eucalyptus trees are gradually being destroyed for his use; the aborigines—"the native black fellow"—is doomed "by the immutable laws of progress, which knowledge and science may help on to the coming and ameliorate to the going, but cannot stop or alter"; the agriculturist is modifying the fauna and flora; "in all the settled parts of Australia are many spots, sometimes entire estates, that might, if superficial appearances only are considered, have been cut out of an English county and bodily transplanted hither. Everything, from the house in its patch of hawthorn-planted park to the gooseberry bushes and gilliflowers in the garden, is English. The horses, the dogs, the ducks, geese, and fowls, are all of British origin, if not of British breed," &c.

Mr. Ward has well observed the Termites and the growth of the giant "ant-hills" in Australia. By constant watching he has "perceived that small hills are thrown up comparatively more quickly than they are afterwards increased in size. In the first year they may be brought up to a foot in height; at the end of seven years it is a good hill that is three feet high. After that

the increase is very slow—a hill of twenty feet high is probably several hundred years old.” It is impossible to adequately notice the many facts, especially relating to the vertebrates, with which the volume teems, while Mr. Ward’s observations are never sensational, and have the *imprimatur* of a life acquaintance. Sometimes he trips, and has not been prevented from so doing by Mr. Fountain; the remarks at p. 83 on the Australian butterflies and other insects, which are identical with European species, requires modification.

This book would have gained immensely by illustration. Mr. Ward must regret, as others of us have done, that we did not use the camera when the opportunities of a short lifetime allowed us to visit scenes we shall not see again.

Notes on the Birds of Nottinghamshire. By J. WHITAKER.
Walter Black & Co., Ltd.

OF all county books on birds this is the most readable and interesting of any we have seen. It is not confined to the mere county records of the Nottinghamshire birds, but is full of the original observations which gives the character to our “Notes and Queries,” consequently one can read the book from start to finish with the liveliest interest and enjoyment. Mr. Whitaker is apparently a real lover of birds, both for field observation and for the enrichment of a private collection, which must be extremely rich in varieties.

A book might be written on the casual and accidental manner in which rare zoological species have been acquired. Mr. Whitaker tells us the story of the way in which the Spanish Sparrow (*Passer hispaniolensis*) may claim inclusion in the Nottinghamshire list. An angler “was fishing in the Trent near Wilford in the autumn of 1900; close to where he stood was a thorn-tree covered with ivy. At dusk a lot of Sparrows kept coming from a farm near by, and flying into the tree. The noise they made and the quantity of birds attracted his notice, so he walked to the tree with rod in hand, thinking he would hit it and see how many birds there were. On getting close to the bush a crowd of Sparrows flew out, and he made a cut at them with his Pike-rod and knocked one down; on picking it up he saw it was a strange bird, so he

took it home and set it up." It was afterwards examined and properly identified. Such occurrences are numerous in the annals of entomology, and serve to maintain the justifiable expectation of every field naturalist.

We can only find room for one more extract from Mr. Whitaker's reminiscential store, and it relates to our old friend *Strix flammea* :—"Many years ago we kept a lot of Pigeons, but one spring could never raise a pie. On asking the keeper the reason, he replied, 'It's all along of those old Owls; they fetch them every night.' I said, 'I don't believe it.' 'Well, sir, if you will come at dusk, I will show you.' We placed ourselves, and soon an Owl came and went into the dovecote. 'He's gone for one,' said the keeper. In a few minutes out he came with something in his claws, and was immediately shot. On picking it up we found not a Pigeon but a big Rat." This narrative deserves a place in the brief held for the Tawny Owl.

Two hundred and fifty-nine species are enumerated, irrespective of a few others not sufficiently authenticated to add to that total—an excellent avifauna for a somewhat small inland county, and embracing some birds which would scarcely be expected to be found in such an area.

EDITORIAL GLEANINGS.

BRITISH ASSOCIATION AT LEICESTER, 1907.—The recent meeting held at Leicester was not a pre-eminently zoological one, astronomy and chemistry being its strongest features. The President's address was naturally confined to astronomical subjects, but one remark may with advantage be pondered by zoologists. Astronomers "have learned the lesson that human knowledge in the slowly developing phenomena of sidereal astronomy must be content to progress by the accumulating labours of successive generations of men; that progress will be measured for generations yet to come more by the amount of honest, well-directed, and systematically discussed observation than by the most brilliant speculation; and that, in observation, concentrated, systematic effort on a special, thoughtfully selected problem will be of more avail than the most brilliant but disconnected work."

The address to the zoological section by Dr. Wm. E. Hoyle was confined to a survey of the Cephalopoda, and one of its most interesting sections related to the discovery and investigation of luminous organs in the Cephalopoda:—"These have now been observed in no fewer than twenty-nine out of about seventy well-characterized genera of Decapoda, and have been found to present a most interesting variety in position and in structure. Before passing on, however, to consider the structure of these organs, it may be well to lay before you the evidence on the strength of which a photogenic function has been ascribed to them. The actual observations are remarkable chiefly for their paucity; indeed, it may seem to some that the foundation of solid fact is too slender for the superstructure raised upon it, but still due consideration will show that this is not the case. The first recorded occurrence of phosphorescence in the Cephalopoda is due to Vérany, and dates back rather more than seventy years, though it was not published till 1851. The description is so definite and concise as to be well worth quoting:—"As often as other engagements permitted, I watched the fishing carried on by the dredge on the shingly beaches which extend from the town of Nice to the mouth of the Var. On the afternoon of Sept. 7th, 1834, I arrived at the beach when the dredge had just been drawn in, and saw in the hands of a child

a Cuttle-fish, unfortunately greatly damaged. I was so struck by the singularity of its form and the brilliance of its colour that I at once secured it, and, showing it to the fishermen, asked whether they were acquainted with it. Upon their replying in the negative, I called their special attention to it, and offered a handsome reward for the next specimen secured, either alive or in good condition, and then passed on to other fishermen and repeated my promise. Shortly afterwards I was summoned, and shown a specimen clinging to the net, which I seized and placed in a vessel of water. At that moment I enjoyed the astonishing spectacle of the brilliant spots which appeared upon the skin of this animal, whose remarkable form had already impressed me; sometimes it was a ray of sapphire-blue which blinded me; sometimes of opalescent topaz-yellow which rendered it still more striking; at other times these two rich colours mingled their magnificent rays. During the night these opalescent spots emitted a phosphorescent brilliance which rendered this mollusc one of the most splendid of Nature's products. Its existence was, however, of short duration, though I had placed it in a large vessel of water. Probably it lives at great depths.' '*

After describing the various luminous organs, Dr. Hoyle remarks:—
“The question of the utility of these variously coloured lights to the creature possessing them admits of an answer which is, at all events, extremely plausible. It was suggested in the case of deep-sea fishes by Brauer, and has been adopted by Chun in reference to the Cephalopoda. They serve as recognition marks by which the various species can identify their fellows; just as certain colour patches in the plumage of birds enable them to find their mates, so in the darkness of the ocean abysses do these fairy lamps serve their possessors. Another and perhaps even more obvious utility is suggested by the general distribution of these organs. It has been pointed out that they are, almost without exception, on the ventral aspect of the body—that is, the inferior surface in the position in which the animal habitually swims. It must happen, therefore, that when the creature is moving over the floor of the ocean in the quest for food, this must be illuminated by its lamps, and the advantages of a series of searchlights playing over the ground will be at once apparent.

“Finally, we have the question, How is the light produced? To this we can only say that this is an instance of the transformation of one kind of energy into another. We are quite familiar with the production of heat in the animal body by the processes of oxidation which

* The species thus referred to was *Histioteuthis bonelliana*.

go on in it; we are also familiar with the production of kinetic energy when a muscle contracts under a nervous stimulus; and we are also aware that electric discharges are produced under similar conditions in certain organs of the Torpedo and other fish. The production of light is a phenomenon of the same kind. When we can explain how stimulation applied to a nerve causes contraction in a muscle, then, and not till then (so far as I can see), shall we be within reasonable distance of explaining the action of these living lamps.

“One point is worthy of notice, which has been ascertained, not by experiments on the Cephalopoda but on other animals, namely, the remarkable economy of this illuminant. A perfectly infinitesimal proportion of the energy expended is wasted on the production of heat. From this point of view animal phosphorescence puts to shame our most modern devices. Whether we shall ever be able to rival Nature in this respect remains to be seen.”

“The Thickness of the Skull in Mammalia” was the title of a paper read by Prof. Rich. J. Anderson:—“Light shines through the orbital roofs in the young Chimpanzee. The coronal and sagittal regions are opaque. The occipital fossæ and roof and sides of the skull are translucent in the Ox. The Kangaroo and Camel have each translucent roof and sides of skull (except in region of horns), so has the Seal. The parietal in part is translucent in both Manatee and Dugong. The upper surface of the skull in Dogs is not so translucent as the sides. The Dolphin's skull is opaque above and translucent behind, and at the central part of sides. The proliferation of the bone cells along muscle attached appears to co-exist with the diminution of the bone under brain and muscle pressure. The bone cells, like leucocytes, desire to avoid the centres of turbulent activity. The skull of the Porcupine is translucent over the frontal and parietal; the Capybara has a skull that is translucent on each side of the middle line in front of the roof, and also at the posterior part of the roof, where the translucency is strictly limited to the upper surface. It is sometimes stated that the portions of the skull covered by muscle (or ‘protected’) are thin. The suggestion is that the skull is strengthened where most exposed. It seems better to refer the thinning to the pressure of muscle mass, brain, or organ. The ridges are due to the accumulation of bone-forming tissue at the points of origin and insertion of the muscles in question. The skull does not appear to lose, but to gain, in strength by the groining (J. Hunter and Holden). The osteoblasts, like leucocytes, seem to avoid the places where thrills or shocks are most common. The former have greatest freedom outside

the active centres, as the latter in the least disturbed nooks contribute to the formation of fibrin."

"Sex in Crustacea, with Special Reference to the Origin and Nature of Hermaphroditism," was discussed by Mr. Geoffrey Smith. We can only refer to his statement of the phenomena:—"The great majority of Crustacea have the sexes separate, and this is also true of the phylum Arthropoda as a whole. There are, however, two large groups of Crustacea, the Cirripedia and the parasitic Isopoda, which are for the most part hermaphrodite; and since these two isolated groups stand alone in this respect among allied groups, we may be certain that the hermaphroditism has been secondarily acquired from some dioecious ancestor. It is therefore interesting to inquire under what conditions hermaphroditism may arise in a dioecious species.

"The most searching analysis of hermaphroditism is afforded by the phenomena of parasitic castration, which was first discovered by Giard, and has been subsequently studied by the author and Potts. The result of these studies has been to show that a number of animals belonging to widely diversified phyla, but especially the Crustacea, when attacked by various parasites, undergo an alteration in their sexual nature of such a kind that at first the gonad in both sexes degenerates to a greater or less extent; secondly, the males assume in varying degrees the secondary sexual characters proper to the female, while the female, without assuming any male character, suffers a certain amount of degeneration in the secondary characters proper to the female. Finally, either on recovery from the parasite or else during the degenerative process, the male may develop ova in its testes, and these ova may grow to a very large size, lying side by side with mature spermatozoa. The females, on the other hand, just as they never develop male secondary characters, also never produce spermatozoa in their ovaries. These results apply especially to the effects of the Rhizocephala upon the Crabs which they infect.

"We see then, first, that hermaphroditism in the Crustacea can be called forth in its completion by an external cause acting upon a sexually differentiated animal, and, secondly, that it can only be called forth in this way in the male sex, not in the female."

Mr. Oswald H. Latter, in his paper on "The Teaching of Biology in Schools," dealt with a subject which shows how far school authorities, as a rule, are still from a sound appreciation of biology and its methods:—"Lastly, a word of defence against certain opponents is necessary. It is by some maintained that anatomy and physiology are 'nasty,' and even indecent, and not fit subjects of education *virginibus puerisque*.

To come straight to the main point, it is the processes of reproduction to which objection is made. It is even urged that zoology may be taught if this part of the subject be left out. There is no more mischievous suggestion. Are we to do all we can to encourage the study of animal life, and then deny all information and guidance on phenomena which are bound to come under observation, as though these were something unholy and unclean? Curiosity on these matters is natural and inevitable, and it is far better—it is best—that this legitimate curiosity should be satisfied and instructed in a clean, wholesome, and scientific way than by any other means. It is only so that a reverent respect for the whole body, whether of brute or man, can be gained. *Puris pura omnia.*"

IN the 'Annals of the Queensland Museum' (No. 7, 1907), Mr. C. W. de Vis describes a Rat under the name of *Uromys banfieldi*, and writes:—"For an introduction to this Rat we are indebted to the observer by whose name it may fitly be honoured—Mr. E. J. Banfield, Honorary Keeper of Dunk Island, an island lying a little to the north of Cardwell, in lat. 15, long. 145. Some while ago that gentleman aroused our curiosity by informing us that a Rat upon the island made little or no nest for its young, but carried them about clinging to its back or to the outer side of its thighs—a habit, to say the least, very unusual among Rats and Mice of the genus *Mus*. The female first sent to us by Mr. Banfield as an example of the species had no young with her, nor were her mammæ much in evidence; consequently, the advent of a specimen caught in the act of carrying young was awaited with interest. Fortune at length favoured our correspondent with an opportunity of placing the correctness of his observation beyond question. Of the second example procured by him, he writes:—"The other day my Dogs turned out a Rat, which made its escape from them by climbing a shrub, and I was able to secure it. You will see that it has a pair of infants attached to the teats. . . . I chloroformed the mother, and noticed that the young lived some time after her.' On arrival the young were found detached. The conical corrugated nipples are, compared with the size of the animal, very long—one especially, 20 mm. in length, calls to mind a marsupial teat. Mr. Banfield finds this Rat to be gentle in disposition, never attempting to bite; it is, therefore, fortunate for it that it is under the protection of one who conserves the native life of the island so strictly that he will not allow a gun to be fired on it."

FROM 'The Longstaffs of Weardall and Teesdale,' by Dr. G. B. Longstaff, we extract the following interesting particulars relative to William Spence, the well-known entomologist:—"William Spence, born 1783 at Bishop Burton, near Beverley. (where his father farmed his own estate), served an apprenticeship with Messrs. Carlill, Greenwood & Co., Russian merchants and shipowners. He married Elizabeth, sister of Henry Blundell, with whom he shortly after entered into partnership, a partnership that lasted nearly fifty years. He lived 1806-1811, and probably later, at Drypool, Hull, but in 1820 he was living at 40, Dock Street, Hull. For several years he was very subject to severe headache, which was, indeed, almost continuous, and as a consequence received the special permission of the commandant to walk on the ramparts of the Citadel, which afforded a quiet and secluded promenade close to his house at Drypool. He appears to have visited Matlock, Clifton, and Leamington in search of health. In 1826 he went to the Continent, where he lived for about eight years. In 1838 he appears to have been living at College Green, Bristol, but in the latter part of his life (after 1843) at 18, Lower Seymour Street, London, where he died 6th January, 1860, aged seventy-seven. His wife died 5th April, 1855. He wrote on Political Economy, and was the first editor of the 'Rockingham' newspaper, and 1815-1826 published, in conjunction with his friend the Rev. William Kirby, F.R.S., Rector of Barham, Suffolk, 'An Introduction to Entomology,' a voluminous standard work that passed through seven editions (the latest 1857). Mr. Spence was a Fellow and a Vice-President of the Royal Society, a Fellow of the Linnean and several other British and foreign learned societies. He and Mr. Kirby were two of the founders and first honorary members of the Entomological Society of London, of which he was President in 1847-8."

In the 'Transactions of the Hull Scientific and Field Naturalists' Club for 1906' (published 1907), under "Bygone Hull Naturalists," there is also another notice of this memorable man whose name among entomologists is almost a household word. This notice is accompanied by a portrait (plate xxxi.), which many will be glad to possess. We have affixed it to the fly-leaf of our copy of the classic 'Introduction by Kirby and Spence.

WE have received from Cambridge the 'Forty-first Annual Report of the Museums and Lecture Rooms Syndicate for 1906.' Dr. S. F. Harmer reports that the year has been an eventful one in respect of the collection of mammals. Dr. E. C. Stirling, F.R.S., of Trinity College,

has with great liberality presented a series of casts which form a complete skeleton of the gigantic extinct marsupial, *Diprotodon australis*. The original specimens, from which the casts were prepared under Dr. Stirling's supervision in the South Australian Museum at Adelaide, have been for some time the subject of his special study, which has resulted in the discovery of much additional information with regard to the structure of this remarkable type. Dr. Stirling's gift has already been announced in a letter to the Vice-Chancellor ('C. U. Reporter,' 1906-7, p. 594). Through the kindness of Mr. R. C. Haldane, the Museum has acquired a skull, with the complete set of baleen, of Rudolphi's Whale (*Balenoptera borealis*).

Shortly before this Report was prepared, His Grace the Duke of Bedford, K.G., sent from his collection in the park at Woburn Abbey two specimens of Przewalsky's Horse (*Equus przewalskii*), which has been regarded as the ancestral form from which the domestic Horse has been derived. The older of these specimens was one of the small herd originally imported from Mongolia by Hagenbeck, and purchased by the Duke of Bedford, while the younger individual was born at Woburn. The opportunity of obtaining this rare and interesting species was thus unique, and the gift must be regarded as one of the most important additions which has been made for some time.

Mrs. Wyndham Somerset has given the frontlet and horns of the rare Takin (*Budorcas taxicolor*) from the Mishmi Country, between Assam and Tibet.

The collection of Antelopes has been largely increased, principally through the donations of specimens from Tropical Africa made by C. B. C. Storey, M.A., Clare College, A. L. Butler, Esq., Capt. E. Mackenzie Murray, and Major W. B. Emery. The receipt of Mr. Storey's large and admirably collected series has been announced in a letter to the Vice-Chancellor ('C. U. Reporter,' 1906-7, pp. 594, 595). The collection included nine skeletons and about forty skulls, with the corresponding skins. Although a certain proportion of the species were previously represented in the Museum, the gift is important not only in increasing our series of specimens of species hitherto inadequately represented, but in particular in containing a considerable proportion of young specimens which illustrate stages in the growth of the horns, and of female individuals of species in which the horns are restricted to the male sex. The Museum, like most other Museums, is deficient with regard to immature and female specimens of many common species, owing to the natural propensity of sportsmen to select as trophies specimens which show a large development of the

horns. The four collections of Antelopes above named are all important in view of the fact that the experience of the last century justifies the belief that many of the large mammals of Africa are destined to become increasingly difficult, if not impossible, to procure in the future.

THE writer of "Nature Notes" in the 'Evening Standard' of Aug. 13th makes the following interesting remarks on the intelligent movements of a caterpillar:—"The signal difference between the intelligence of a plant and the mind of an animal in some cases strikes me as just one of slowness of movement and fixity of station. There are plants which have such a look of animality about them, seem so sensitive, and—as I have said of the black bryony in spring and early summer—even so watchful, that one may hesitate to pluck or handle them roughly (writes Mr. George A. B. Dewar). One would rather crush a caterpillar in the rosebud or tender young leaf unfolding than one would stamp on the black bryony trailer, feeling queerly its way across the tangled lane in May. To take this black bryony trailer among plants, among insects, the yellow and black barred caterpillar—I think the Cinnabar Moth's caterpillar—which is now feeding up for its chrysalid stage on the leaves of the yellow ragwort, does the caterpillar really convey to us much more the notion of mind than the trailer of the plant? I cannot say that to me it always does. About both of them there seems to be what I have called a physical intelligence. The feeding—almost incessant feeding—of this yellow and black caterpillar of the ragwort, what is it but an act of physical intelligence? Shake it off the ragwort. Presently it will climb up a neighbouring plant. It apparently tests the leaves of this new station, and, finding that they are not the right sort, refuses to nibble. But this is merely intelligence of the sense of taste, a physical matter. The black bryony would in the same way refuse to feed on certain substances that Nature has not included on its menu if these were set at its rootlet tips. It would be just as intelligent about its food, and just as fastidious as the caterpillar—indeed, many plants are much more fastidious and discriminating in this than many caterpillars; which, their ordinary food-plant failing, or being denied them, in captivity will eat each other. The one mysterious matter in which the caterpillar seems slightly to excel the plant in intelligence is that of 'shamming death.' The bryony, at any rate, never does that! Or, to put it in a way that is a little less unacceptable, Nature never shams death for a plant when an enemy threatens it."

